LineUp With Math™ QUICK START GUIDE

Introduction

This Guide outlines 6 steps to help you prepare to teach *LineUp With Math*™ and implement it with your students.

For more details, see the *LineUp With Math*™ Educator Guide, as well as the Teacher Guide for each Problem Set you choose to teach. All materials are free and available on the *LineUp With Math*™ **teacher** website:

www.smartskies.nasa.gov/lineup

Overview of the Student and Teacher Materials

The focus of *LineUp With Math*™ is an interactive online Simulator featuring air traffic control problems in a realistic route structure with two to five planes. Six paper-and-pencil instructional workbooks support the Simulator Problem Sets. *LineUp With Math*™ also includes movies for background and instructional support.

Each Air Traffic Control Problem Set is accompanied by a Teacher Guide with a full set of answers and solutions, as well as suggestions for implementing each Problem Set.

LineUp With Math™ has two websites: a teacher website and a student website.

> The **student** website provides access to the online Simulator.
> The **teacher** website provides access to all print materials, including answers to the student worksheets and Simulator problems, and to the movies.

Students should access the Simulator using the **student** website to prevent them from accessing the problem solutions on the teacher website.

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1 View Introductory Materials

Teacher website: www.smartskies.nasa.gov/lineup

Go to the *LineUp With Math*™ **teacher** website:

www.smartskies.nasa.gov/lineup

If you have never used *LineUp With Math*™, view the following movies:

> "What is *LineUp With Math*™?" – an introduction to the product.
>
> "24-Hours of Flight in the US" – the world's biggest distance-rate-time problem.
>
> "Welcome to Sector 33" - an overview of the vocabulary, units, and graphical representations of air traffic control problems. This material is the backbone of both the Simulator and the print-based workbooks.
>
> "Introduction to the ATC Simulator" – an overview of the features and functions.

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2 Try the Simulator

Student website: www.atcsim.nasa.gov

Access and try the Simulator. On-line instructions are available to assure that your computer is configured to support the Simulator. This link will take you to the Simulator home page on the **student** website:

www.atcsim.nasa.gov

3

Download and Print the Online Documents

www.smartskies.nasa.gov/lineup

On the **teacher** website, select the Problem Set you will use to introduce your students to *LineUp With Math*™. If your students have never used *LineUp With Math*™, we strongly recommend starting with Problem Set A.

Follow the online instructions to select and download the materials for the Problem Set you have selected.

4

Review the Materials

If you have never used *LineUp With Math*™, familiarize yourself with the selected Student Workbook. With the student and teacher materials in hand and with access to the ATC Simulator, read the Implementation Section in this document.

5

Duplicate the Student Workbook

For the Problem Set you have selected, duplicate the Student Workbook to provide each student with one copy.

6

Implement the Instructional Activities with Your Students

As you read through this step, you may find it helpful to have a copy of the Student Workbook and teacher materials.

You may choose to spread the Simulator and workbook activities over two or three class periods.

You may also wish to assign some of the supplementary Simulator problems.

Each instructional activity is described in greater detail in the LineUp With Math™ Educator Guide.

The following sequence of instructional activities is recommended for implementing each *LineUp With Math*™ Air Traffic Control Problem Set:

a. If your students are new to *LineUp With Math*™, begin with the three introductory movies:
   -- "24-Hours of Flight in the US"
   -- "What is *LineUp With Math*™?"
   -- "Welcome to Sector 33" (Only for Problem Set A)

b. If your students are new to *LineUp With Math*™, introduce the ATC Simulator. You may want students to view the animated "*ATC Simulator User Tutorial*." You may choose to project the Simulator and the animated tutorial for a whole class activity, or to have the students work independently or in pairs on individual computers.

   Students should access the Simulator and movies at the following address:

   www.atcsim.nasa.gov

c. For the Problem Set you have selected, assign the ATC Simulator problems featured in the Student Workbook. Provide time for your students to explore the Simulator and those assigned interactive ATC problems.

d. For the Problem Set you have selected, assign the worksheets in the accompanying Student Workbook.

e. After students have completed the Workbook, have them revisit the assigned problems on the Simulator to see if they can optimize their solution and match the target time shown on the Simulator screen.

   If you plan to teach a subsequent Problem Set, you may want to have your students experiment with the first few Simulator problems from that Set.